

### Abstract of the Disclosure

The SG-DFB laser diode of the present invention has a high output optical efficiency in comparison with a conventional wavelength tunable laser provided with Bragg reflection ends at the both ends of the gain region for the wavelength tuning as a structure capable of connecting an optical fiber directly without losing the optical wave generated at the gain region. And also, the present invention can be manufactured by the manufacturing process of a conventional wavelength tunable laser diode without reinvesting a new equipment. Further, the SG-DFB laser diode of the present invention can control a broadband wavelength with a simple circuit construction in comparison with a conventional wavelength tunable laser diode since it can vary the wavelength in continuous/incontinuous by the change of current of the each region of the phase control regions.